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No. IX.

HIGG'S IMPROVED MONOCHORD.

December 20, 1843.

W. HUGHES HUGHES, ESQ. F.S.A. V.P. IN THE CHAIR.

IN Mr. Higg's improved instrument measurement has been applied to sound, and the actual relation of one tone to another is shewn on an accurately divided scale of two feet. The open note *c* being precisely the length of the organ-pipe, from which the same sound is obtained, the proper and exact length of every organ-pipe may be ascertained. The diatonic and chromatic scales are deduced by mathematical divisions alone, without the assistance of the ear, but, being tested by that organ, are found to be perfectly correct.

It will be seen, by an attentive examination of these scales, that a string being divided into two equal parts gives the octave of the original note; into three parts, the fifth of the scale; into four parts the fourth; five parts will give the major third; six parts the minor third; in fact, this investigation thus carried out is eminently calculated to afford insight into the nature of concords and discords. The explanation thus far relates to the diatonic and chromatic scales only: the next portion belongs to the enharmonic divisions, and demonstrates the exact relation of the thirty-two intervals in the octave, to express which the thirteen keys of the organ or pianoforte are used; it will, therefore, practically explain the meaning of the term temperament in reference to those instruments, and it will prove the absolute perfection of tone to be expressed by such instruments as

the violin and violoncello. The last scale is that marked pianoforte temperament, and is intended for the assistance of persons in remote parts, where the aid of a skilful tuner cannot be obtained ; for by it any lady or gentleman possessed of a correct ear, though totally ignorant of the art of tuning, may put an instrument into perfect order.

The instrument may be said to be capable of facilitating the practice of singing, the teaching of theory, and the tuning of organs and pianofortes.

No. X.

TAYLOR'S FIRE-ESCAPES.

MR. TAYLOR'S fire-escapes are of two kinds. One being constructed of canvass, extended on a jointed frame, into which persons may precipitate themselves from a window or any elevated position in cases of fire ; and the other consisting of two ropes, one of which running round friction-wheels, within a wooden upright chest, and over a pulley in a jointed crane-jib, prevents the car or canvass-bag from descending too rapidly, while the other is required for drawing up the car again when the first descent has been effected. The whole of the apparatus is contained in a neat ornamental pedestal, which may stand in a dressing-room or bed-room close to a window, and may be used at a minute's notice, without any assistance being required from a second party.